

REMARKS

The Office Action mailed June 23, 2004, has been reviewed, and the Examiner's comments have been carefully considered. In view of the reasons below, claims 1-18 remain pending and are submitted for reconsideration.

Additionally, Applicants appreciate the Examiner's acknowledgement of Applicants' claim for foreign priority and receipt of the priority documents; acceptance of the drawings filed October 17, 2003; and consideration of the IDS filed October 17, 2003.

35 U.S.C. § 102 Rejections

Claims 1-18 are rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,116,227 (Yoshioka). The rejection should be withdrawn because the cited reference fails to disclose, teach, or suggest all the features of the claimed invention.

For example, Yoshioka does not disclose, teach, or suggest a fuel injection control device that "[calculates] a target fuel injection amount by correcting the basic fuel amount in response to the trend in variation of the engine rotation speed" as recited in claims 1 and 17 or a fuel injection control method that includes "calculating a target fuel injection amount by correcting the basic fuel amount in response to the trend in variation of the engine rotation speed" as recited in claim 18.

In contrast, Yoshioka discloses an engine 1 having a control unit 2 that controls a fuel injector 3 so that the air-fuel ratio is "the stoichiometric air-fuel ratio or a predetermined lean air-fuel ratio according to predetermined engine running conditions." (Yoshioka at col. 7, lines 53-57.) To perform the air-fuel ratio control, the control unit 2 calculates "a basic injection amount based on the engine load and the engine rotation speed." (Yoshioka at col. 5, lines 41-43.) The control unit 2 also learns a multiplication term and an addition term. (Yoshioka at col. 5, lines 47-54.) The multiplication term "has the function of canceling steady-state deviation [of the air-fuel ratio from the stoichiometric air-fuel ratio] under running conditions in which air-fuel ratio feedback control is not performed so that this control is not affected by error and time-dependent deterioration of air-fuel ratio control components." (Yoshioka at col. 1, line 66 to col. 2, line 6; col. 3, lines 7-9.) The addition

term “is a value for eliminating the effect of error and time-dependent deterioration exerted on fuel injector opening timing.” (Yoshioka at col. 2, lines 21-23; col. 3, lines 7-9.)

After learning the multiplication and addition terms, the control unit 2 converts the “learned addition term to a proportion relative to the basic injection amount” and modifies the “learned multiplication term such that the sum of the proportion and the learned multiplication term” is within a preset range. (Yoshioka at col. 5, lines 54-58.) By limiting the learned terms to a preset range, the control unit 2 suppresses a large air-fuel ratio error. (Yoshioka at col. 2, lines 49-52; col. 3, lines 32-35.) The control unit then calculates “a target fuel injection amount based on the basic injection amount, [the] modified multiplication term and [the] modified addition term.” (Yoshioka at col. 5, lines 59-61.) In this manner, the control unit 2 of Yoshioka reduces the deviation of the air-fuel ratio from the stoichiometric air-fuel ratio “when there are errors or time-dependent deterioration in the performance of the air flow meter and flowrate characteristics of the fuel injector.” (Yoshioka at col. 1, lines 62-66 (emphasis added).)

Nothing in the disclosure of Yoshioka, however, teaches or suggests calculating a target fuel injection amount “by correcting the basic fuel amount in response to the trend in variation of the engine rotation speed” as called for in claims 1, 17, and 18. As a result, Yoshioka does not anticipate the claimed invention. For at least this reason, reconsideration and withdrawal of the rejection of claims 1, 17, and 18 are respectfully requested.

Claims 2-16 depend from claim 1 and are allowable therewith for at least the reasons set forth above without regard to further patentable subject matter contained therein. Reconsideration and withdrawal of the rejection of claims 2-16 are respectfully requested.

Conclusion

In view of the foregoing remarks, Applicants believe the application is now in condition for allowance. Favorable reconsideration of the application is respectfully requested. If there are any questions regarding the prosecution of this application, the Examiner is invited to contact the undersigned attorney at the phone number listed below.

Respectfully submitted,

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